

segment.--

*P2
out*
--22. The structure of claim 21 wherein said structure is fabricated in a single ionized metal plasma tool.--

--23. The structure of claim 21 wherein said first capacitor electrode, said first barrier layer, said copper seed layer, said dielectric, said second barrier layer, and said second capacitor electrode are fabricated in a single ionized metal plasma tool.--

--24. The structure of claim 21 wherein said first barrier layer comprises metallic tantalum nitride.--

--25. The structure of claim 21 wherein said second barrier layer comprises metallic tantalum nitride.--

--26. The structure of claim 21 wherein said first barrier layer comprises metallic tantalum nitride having a nitrogen content of approximately 21%.--

--27. The structure of claim 21 wherein said second barrier layer comprises metallic tantalum nitride having a nitrogen content of approximately 21%.--

--28. The structure of claim 21 wherein said dielectric comprises tantalum nitride having a nitrogen content of at least 30%.--

*b2
b7c*

--29. The structure of claim 21 wherein said dielectric comprises tantalum nitride

having a nitrogen content of approximately 60%.--

--30. The structure of claim 21 wherein said dielectric comprises ceramic

tantalum nitride.--

--31. The structure of claim 22 wherein a percentage of nitrogen partial flow in a

mixture of gases in said ionized plasma tool is adjusted so as to cause a nitrogen content
in each of said first and second barrier layers to be approximately 21%.--

--32. The structure of claim 22 wherein a percentage of nitrogen partial flow in a

mixture of gases in said ionized plasma tool is adjusted so as to cause a nitrogen content
in said dielectric to be to be at least 30%.--

--33. The structure of claim 22 wherein a percentage of nitrogen partial flow in a

mixture of gases in said ionized plasma tool is adjusted so as to cause a nitrogen content
in said dielectric to be approximately 60%.--

--34. A capacitor comprising:

a first capacitor electrode comprising a bottom interconnect metal segment;

a first barrier layer over said bottom interconnect metal segment;

a seed layer over said first barrier layer;

a dielectric over said seed layer;
a second barrier layer over said dielectric;
a second capacitor electrode comprising a top interconnect metal segment, wherein
said bottom interconnect metal segment, said first barrier layer, said seed layer, said
dielectric, said second barrier layer, and said top interconnect metal segment are
fabricated in a single tool.--

--35. The structure of claim 34 wherein said single tool is a single ionized metal
plasma tool.--

--36. The structure of claim 34 wherein said bottom interconnect metal segment
comprises copper.--

--37. The structure of claim 34 wherein said top interconnect metal segment
comprises copper.--

--38. The structure of claim 34 wherein said first barrier layer comprises metallic
tantalum nitride.--

--39. The structure of claim 34 wherein said second barrier layer comprises
metallic tantalum nitride.--

--40. The structure of claim 34 wherein said first barrier layer comprises metallic tantalum nitride having a nitrogen content of approximately 21%.--

--41. The structure of claim 34 wherein said second barrier layer comprises metallic tantalum nitride having a nitrogen content of approximately 21%.--

--42. The structure of claim 34 wherein said dielectric comprises tantalum nitride having a nitrogen content of at least 30%.--

--43. The structure of claim 34 wherein said dielectric comprises tantalum nitride having a nitrogen content of approximately 60%.--

--44. The structure of claim 34 wherein said dielectric comprises ceramic tantalum nitride.--

--45. The structure of claim 35 wherein a percentage of nitrogen partial flow in a mixture of gases in said ionized plasma tool is adjusted so as to cause a nitrogen content in each of said first and second barrier layers to be approximately 21%.--

--46. The structure of claim 35 wherein a percentage of nitrogen partial flow in a mixture of gases in said ionized plasma tool is adjusted so as to cause a nitrogen content in said dielectric to be at least 30%.--

--47. The structure of claim 35 wherein a percentage of nitrogen partial flow in a mixture of gases in said ionized plasma tool is adjusted so as to cause a nitrogen content in said dielectric to be approximately 60%--

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